The partial translation of the cited reference No. 2 (JPP'9-187015);

[0019]

[Embodiment of the Invention]

Hereafter, one aspect of the embodiment of this invention is explained.

Example 1:

Fig. 1 shows a configuration of an image encorder as used in the Example 1 of the present invention.

And in Fig. 1, 1 denotes a subtractor (locally decoded image generation means) which computes a differential image Gs by subtracting an estimated image Ge from the inputted image Gi, and 2 denotes a converter(locally decoded image generation means) which converses the differential image Gs output by the subtractor 1 into a discrete cosine transform and thereafter outputs the conversion result as the conversion factor Gst of the difference image Gs.,

On the other hand, 3 denotes a quantizing means(locally decoded image generation means) which quantizes the conversion factor Gst outputted from the converter 2, and outputs the quantization coefficient Gq, while 5 denotes an inverse quantization means which inversely quantizes the quantization coefficient Gq output from the quantizing means and further outputs, the conversion factor Gqt.

Further, 6 denotes an inverse transforming means(locally decoded image generation means) which transforms the quantization coefficient Gq output from the inverse quantizing means 5 into reverse discrete cosine transform and outputs an error picture Gg, and while 7 denotes an adding means which adds

the estimated image Ge to the error image Gg output from the inverse transforming means 6 and outputs a locally.

[0020]

11 denotes STFM (a 1st memory means) which memorizes the local decoded image Gk output from the adding means 7, and STFM is the abbreviation for Short Term Frame Memory.

12 denotes a delay time control means (a 2nd memory means) which holds temporarily the locally decoded image Gk output from the adding means 7 and after the locally decoded image Gk has been output from the adding means 7 and after predetermined period has been elapsed, stores the locally decoded image Gk in LTFM13.

13 denotes a LTFM (a 2nd memory means) which memorizes the locally decoded image Gk output from the adding means 7, at a time being predetermined period earlier than a time when the locally decoded image Gk is stored in the LTFM11.

LTFM is the abbreviation for Long Term Frame Memory.

[0021]

14 denotes a block base forecasting means used for a first forecasting means which performs a motion compensation for every frame of the input image Gi with reference to the locally decoded image Gk memorized by STFM11 and LTFM13, and generates the estimated image Ge, the motion vector Uv and the prediction error Eg.

15 denotes a segment base forecasting means (a 2nd forecasting means) which performs a motion compensation for every segment area which constitutes the frame of the input image Gi with reference to the locally decoded image Gk memorized by STFM11 and LTFM13, and generates the estimated image Ge, the motion vector Uv and the prediction error Eg, as

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a second forecasting means.

16 denotes a selection means (prediction means) which performs to obtain a deviation formed between the prediction error $E_g$ generated by the block base forecasting means 14, and the prediction error $E_g$ generated by the segment base forecasting means 15, and selects a prediction image $G_e$ and the motion vector $U_v$ generated by the block base forecasting means 14 or the segment base forecasting means 15 according to the deviation.

[0022]

17 denotes a variable length coding section (encoding means) which generates a variable length code word $G_{ck}$ by performing the variable length coding of the quantization coefficient $G_q$ outputted from the quantizing means 3, the motion vector $U_v$ outputted from the selecting means 16 and the prediction parameter $E_p$ output from prediction mode $E_m$ and the segment base forecasting means 15.

18 denotes a buffer (quantized control means) a which stores the variable length code word $G_{ck}$ generated from the variable length coding means and outputs the variable length code word $G_{ck}$ to the image decoding means after when an accumulation value has been reached at a predetermined threshold value as the encoded bit streams CBS.

19 denotes a quantized control part which controls the quantized value q of the quantizing part 3 according to the buffer residue $B_z$ (accumulated dose of the variable length code word $G_{ck}$) of the buffer 18.

[0023]

Fig. 2 shows a precise configuration of the block base forecasting means 14, and in Fig. 2, 21 denotes an estimated

image generation means which generates the estimated image Gea so as to make the prediction error Ega minimum, by performing a motion compensation for every frame of the inputted image Gi with reference to the locally decoded image Gk memorized by STFM11 and finally outputs the motion vector Uva and the estimated image Gea.

22 denotes an error calculating means which subtracts the estimated image Gea from the input image Gi and outputs an absolute value of the result of the subtraction thereof as the prediction error Ega.

23 denotes an estimated image generation means which generates the estimated image Gec so as to make the estimate Egv minimum by performing the motion compensation, for every frame of the inputted image Gi with reference to the locally decoded image Gec memorized by LTFM13, and outputs the estimated image Gec and the motion vector Uvc.

24 denotes an error calculation means which subtracts the estimated image Gec from the input image Gi, and computes the absolute value of the subtraction result as the prediction error Egc.

25 denotes an interpolation image generation means which generates an average image(interpolation image) of the estimated image Gea generated by the estimated image generation means 21 and the estimated image Gec generated by the estimated image generation means 23, and outputs the interpolation image generation part which outputs the interpolation image thereof as the estimated image Geb.

26 denotes an error calculation means which subtracts the estimated image Geb from the inputted image Gi and outputs absolute value of the subtraction result as the prediction error

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Egb.

[0024]

While, 27 denotes an error value comparing means which selects the minimum prediction error among the prediction error Ega-Egc outputted from the error calculation sections 22, 26, and 24 and outputs the minimum prediction error as the prediction error Eg, and outputs the selected result Egx.

28 denotes a prediction image selection means which selects a prediction image the prediction error thereof becomes minimum among the estimated images Gea-Gec, based on the selected result Egx which the error value comparing element 27 outputs.

29 denotes a motion vector selecting means which selects and outputs the motion vector Uva when the prediction image Gea is selected by the prediction image selection means 28, while when the prediction image Gec is selected, which selects and outputs the motion vector Uva.

On the other hand, when the prediction image Geb is selected, the motion vector selecting means outputs the motion vector Uva and the motion vector Uvc.

[0070]

Example 7:

Fig. 15 shows a configuration of one example of the image encoding means as used in the Example 7.

In Fig. 15, the explanations about the means having the same symbol as used in Fig.1 has been omitted.

81 denotes a delay time determining means (a delay time controlling means) which controls a time delay for memorizing time of the LTFM13 with respect to the STFM11 in accordance with

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the buffer residue Bz(an data accumulation value in a variable length coded word Gck).